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A Study on the Multidimensional Poverty Index of Northeast India

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Abstract:
The concept of poverty has evolved beyond traditional income-based measures, acknowledging that deprivation extends far beyond monetary considerations. The Multidimensional Poverty Index (MPI) has developed as a holistic instrument to evaluate poverty by taking into account various non-financial aspects. This study provides an overview of poverty assessments, specifically the multidimensional poverty index (MPI), and their evaluation in the eight states of northeast India, along with the theoretical framework for multidimensional measures. However, this region of India faces numerous developmental challenges that contribute to persistent poverty. Traditional poverty measures often fail to capture the complexities of deprivation in this region, necessitating the application of multidimensional approaches. The differences among the states regarding the indicators being examined have been highlighted. The research also found that while multidimensional poverty has diminished over the last decade, the nature of this reduction is regressive. The current study indicates that the Northeast region must pursue a path of equitable development.

INTRODUCTION:

Multidimensional Poverty Index (MPI) is a measurement tool that assesses the level of poverty by examining various deprivations within a household. It can help in pinpointing the poorest individuals and forming policies aimed at alleviating poverty. India has established its own National MPI, which evaluates the number of households facing multiple deprivations. The MPI is employed by governments, development organizations, and other entities to identify the most at-risk individuals and create policies aimed at tackling poverty. The MPI is utilized to assess performance at both national and sub-national levels. The Multidimensional Poverty Index (MPI) in India serves as a measure of poverty across several different facets of individuals' lives. It identifies overlapping deprivations in health, education, and living standards. These indicators reflect simultaneous deprivations and the contribution of each indicator, and most critically, it aids in the formulation of sector-specific policies, while state-wise assessments of the national multidimensional poverty index (MPI) will prioritize efforts towards the most disadvantaged by focusing on specific indicators and dimensions.

The North Eastern Region (NER) of India consists of eight states, namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura. This region accounts for 7.97% of the total geographical area of the country and 3.78% of its population. Basic data regarding area and population of NE States is as under –

Table-1: population and area of North East States of India

State	Population (as per census 2011)	Area (sq km)	Population (%)	Area (%)	Density of population per sqkm
Assam	3,12,05,576	78,438	2.58%	2.39%	398
Tripura	36,73,917	10,486	0.30%	0.32%	350
Meghalaya	29,66,889	22,429	0.25%	0.68%	132
Manipur	28,55,794	22,327	0.24%	0.68%	115
Nagaland	19,78,502	16,579	0.16%	0.50%	119
Arunachal Pradesh	13,83,727	83,743	0.11%	2.55%	17
Mizoram	10,97,206	21,081	0.09%	0.64%	52
Sikkim	6,10,577	7,096	0.05%	0.22%	86
Total NE	**4,57,72,188**	**2,62,179**	**3.78%**	**7.97%**	**173**

Source: Census of India 2011

These North-East states of India, is known for its cultural diversity, rich natural resources and strategic geopolitical location. However, these states also face numerous developmental challenges that contribute to persistent poverty. Traditional poverty measures often fail to capture the complexities of deprivation in this region which causes the necessitating of the application of multidimensional approaches.

Objective:

1. To examine the poverty trend in North East India.
2. To calculation of multidimensional poverty index (MPI) for each state of North-East India.
3. To examine the contribution of indicators to the multidimensional poverty index (MPI) among North-Eastern states of India.

Methodology:

The method applied in this paper is descriptive. The data has been collected from various secondary sources including the report of Planning Commission, Government of India, report published by NITI aayug website, national health survey report, Govt. publications and plan documents, newspaper, journals etc.

Calculation procedure of multidimensional poverty index (MPI):

The multidimensional poverty index (MPI) encompasses three dimensions—health, education, and standard of living. Health includes two indicators, namely nutrition and child mortality. Education comprises two indicators as well, which are years of schooling and school attendance. For standard of living, there are six indicators, including cooking fuel, sanitation, drinking water, electricity, housing, and assets.

The relative weights of the dimensions are health (1/3), education (1/3) and standard of living (1/3). Since there are three indicators for health and two indicators for education, the health dimension contributes 1/6 of the total weight for nutrition indicator and 1/12 for other two indicators. The education dimension contributes 1/6 of the total weight for the dimension. Standard of living has six indicators, each contributing 1/7 of 1/3 i.e. 1/21 of the total weight for the dimension. These are shown in the following table

Table-2: Indicators in India's National MPI

Dimension	Indicator	Deprived if living in the household where	Weight
Health	Nutrition	Any child between age of 0-59 months, or woman between the age of 15-49 years or man between the ages of 15-54 years is found to be undernourished	1/6
	Child-Adolescent mortality	Any child under the age of 18 years has died in the five years preceding the survey	1/12
	Maternal health	Any woman in the household who has given birth in the 5 years preceding the survey has not received at least 4 antenatal care visits	1/12
Education	Years of schooling	No household number age 10 years or other has completed six years of schooling	1/6
	School attendance	Any school aged child is not attending the school upto the age at which he or she would complete class 8	1/6
Standard of Living	Cooking fuel	The household cooks with dung, wood or coal	1/21
	Sanitation	The household's sanitation facility is not improved	1/21
	Drinking water	The household does not have access to improved drinking water	1/21
	Electricity	The household has no electricity	1/21
	Housing	Housing materials for at least one of roof, walls and floor are inadequate	1/21
	Assets	The household does not own more than one of these assets: radio, TV, telephone, bicycle, refrigerator, computer, etc.	1/21
	Bank account	No household member has a bank account	1/21

Source: NITI Aayog Report based on National Family Health Survey (2023)

The process of computing the multidimensional poverty index (MPI) is divided into two stages- Identification and Aggregation. Identification involves obtaining the deprivation score every individuals followed by censoring of deprivation score to identify the multidimensional poor for a given cut-off. Aggregation involves the estimation of two partial indices i.e. head count ratio and intensity, the product of which provides us the multidimensional poverty index (MPI).

$$\text{Head Count Ratio, H} = \frac{q}{n}$$

Where, q is the total number of multidimensionally poor individuals identified and n is the total population.

$$\text{Intensity, A} = \frac{1}{q}\sum_{i=1}^{q} \text{C}$$

Where, C is the censored deprivation score (i.e. deprivation score of multidimensionally poor individuals) up to the i^{th} individuals and q is the number of multidimensionally poor individuals.

Multidimensional poverty index (MPI) = H × A.

The multidimensional poverty index (MPI) ranges from 0 to 1 where 0 represents on poverty and 1 represents universal poverty where the high level of multidimensional poverty has been denoted by the range $0.5 \leq MPI \geq 1$ and the range $0.2 \leq MPI \geq 0.5$ indicates moderate level of poverty. The relatively low level of multidimensional poverty has been specified by the range $0 \leq MPI \geq 0.2$.

Discussion on findings:

Table-3: State-wise percentage of population living below poverty line in NE India

State	2004-05	2011-12	2020-21
1.Arunachal Pradesh	31.1	34.7	24.27
2.Assam	34.4	32.0	31.98
3.Manipur	38.0	36.9	36.89
4.Meghalaya	16.1	11.9	32.67
5.Mizoram	15.3	20.4	9.80
6.Nagaland	9.0	18.9	25.23
7.Sikkim	31.1	8.2	3.82
8.Tripura	40.6	14.1	16.65
Total	215.6	177.1	241.31

Source: NITI Aayog Report based on National Family Health Survey (2021)

The data show that the percentage of population living below poverty line in 2004-05 is highest in the state Tripura while Sikkim has the lowest as compare to other states. Manipur is the second highest state with 38.0 % but as compared to the 2011-12, the percentage of population living below poverty line in Tripura has declined sharply.

But according to the report of NITI Aayog (2021) the percentage of population living below poverty line of some states has reduced compared to the last decades. Arunachal Pradesh shows a sharp decline (more than 10%) of poverty in these periods while Meghalaya, Nagaland and Tripura's percentage of population living below poverty line has increased. Still in 2020-21, Assam is the third largest state with 31.98% and Sikkim is the least percentage of population living below poverty line with only 3.82%.

Table-4: State wise MPI score and its Rank(2015-16)

State	Head Count Ratio, H (in %)	Intensity, A (in %)	MPI (H × A)	Rank of north-eastern states on the basis of MPI
1.Meghalaya	32.54	48.06	0.157	1
2.Assam	32.65	47.89	0.156	2
3.Nagaland	25.16	46.33	0.117	3
4.Arunachal Pradesh	24.23	47.26	0.115	4
5.Tripura	16.62	45.02	0.075	6
3.Manipur	16.96	44.44	0.08	5
5.Mizoram	9.78	47.4	0.046	7

7.Sikkim	3.82	41.2	0.016	8

Source: NITI Aayog Report based on National Family Health Survey (2015-16)

In the above table, it is observed that across the states of North-East India the value of MPI ranges is from 0.016 to 0.157. In accordance with computed multidimensional poverty index (MPI) the state of Meghalaya is the most suffered state followed by Assam and Nagaland i.e. Meghalaya is the poorest state of North-East while Sikkim and Mizoram are relatively in better position among them. Tripura, Manipur and Arunachal Pradesh are in good condition than Assam.

Table-5: State wise MPI score and its Rank (2020-21)

State	Head Count Ratio, H (in %)	Intensity, A (in %)	MPI (H × A)	Rank of north-eastern states on the basis of MPI
1.Meghalaya	27.79	48.01	0.133	1
2.Assam	19.35	44.41	0.086	2
3.Nagaland	15.43	42.61	0.066	3
4.Arunachal Pradesh	13.76	43.04	0.059	4
5.Tripura	13.11	42.68	0.056	5
6.Manipur	8.10	41.91	0.034	6
7.Mizoram	5.30	45.62	0.024	7
8.Sikkim	2.60	41.02	0.011	8

Source: NITI Aayog Report based on National Family Health Survey (2023)

Data show that the value of MPI ranges from 0.011 to 0.133 across the states of North-East India. In accordance with computed multidimensional poverty index (MPI), the state of Meghalaya is the most deprived state followed by Assam and Nagaland i.e. Meghalaya is the poorest state of North-East while Sikkim and Mizoram are relatively in better position among the North-Eastern states of India. On the other hand Manipur remarkably improves its position at MPI.

Conclusion and suggestion:

From the above study, it is clear that multidimensional poverty is not uniformly distributed among the states of north-east India. Factors such as illiteracy, sanitation, access of water, housing quality and nutrition are significant and show considerable variation across states. The North East region of India is largely reliant on agriculture. Nearly all the states within this area are situated in hilly regions, which is a crucial element contributing to the poverty faced by the north-eastern states, as they encounter numerous natural climate-related disasters during the farming season.

Illiteracy presents a significant obstacle in north-east India. To improve education and eradicate the illiteracy of the common populace, the government should make substantial investments in upgrading educational institutions and in training aimed at developing a skilled workforce. At the same time, the government must emphasize the implementation of different schemes centered on nutrition. Malnutrition can lead to rising healthcare costs, reduced productivity, and therefore impede swift economic growth, perpetuating the cycle of poverty and ill health.

The Multidimensional Poverty Index (MPI) employs a direct approach to measuring poverty for the purpose of international comparisons among nations. However, this region of India faces numerous

developmental challenges that contribute to persistent poverty. The MPI value has consistently remained high in Assam and Meghalaya over the past decade. The vulnerability to poverty was assessed to be lower in Sikkim throughout the decade compared to the all-India average. Conversely, the severity of poverty has been greater in Meghalaya and Assam. Assam, serving as a gateway to north-east India, continues to be multidimensionally poor relative to all other NE states. Therefore, a pro-poor strategy for this region focusing on health, education, and living standards is recommended to combat the situation. If the government implements necessary actions and develops policies to assist those in need, the poverty challanges in the north-eastern states can be mitigated to some extent.

References:

1. Bagli, S. (2017). A study of multidimensional poverty in Northeast India. Inequality, Poverty and Development in India: Focus on the North Eastern Region, 189-206.
2. Phukon, M., & Singh, R. (2017). A Study on Spatial Statistical Method of Poverty and Sustainable Development of North-Eastern States of India. Inequality, Poverty and Development in India: Focus on the North Eastern Region, 337-349.
3. Konwar, D. P. (2020). The Multidimensional Poverty in the North Eastern States of India.
4. Das, P., Ghosh, S., & Paria, B. (2022). Multidimensional poverty in India: a study on regional disparities. GeoJournal, 87(5), 3987-4006.
5. Ministry of home affairs. https://www.mha.gov.in/en/commoncontent/north-east-division
6. Planning Commission,(2014). Methodology for measurement of Poverty.
7. NITI Aayog,(2023). Methodology for measurement of Multidimensional Poverty Index 2023. https://www.niti.gov.in/sites/default/files/2023-08/India-National-Multidimentional-Poverty-Index-2023.pdf